

AU/AWC/244/1999-04

AIR WAR COLLEGE

AIR UNIVERSITY

**THE PROSPECTS FOR INTERNATIONAL TERRORIST  
GROUPS EMPLOYING CHEMICAL WEAPONS**

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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April 1999

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## *Preface*

Threats are all around us. The daily car trip to work, playing basketball or football, operating mechanical equipment at home or at work all can threaten our health and our very lives. One can understand these threats since they occur as a natural part of living. The threat of international terrorism, however, confounds one the most. Why would a total stranger want to inflict fatal violence on a people or country without a seemingly good reason? I became interested in this area in the early 90's when I attended the Dynamics of International Terrorism Course taught at Hurlburt Air Force Base, Florida. This school taught me the fundamentals of being alert to my surroundings and how quickly terrorist activities can take place.

I appreciate the support of several people who helped me prepare this paper. First, Dr. James Winkates, my advisor, challenged me where appropriate and kept me on track throughout the project. The Air University librarians and bibliographers were most helpful in assisting me in ferreting out the material for this paper. I would like to give a special thanks to Colonel William E. Holtkamp, Deputy Director, Defense Threat Reduction Agency, who provided me key research material. I would also like to thank my spouse who endured many long weekends and evenings alone while I worked on this paper.

### *Abstract*

There has been much discussion and debate among security analysts, scholars, and politicians about the possible use of weapons of mass destruction. This paper examines the prospects for international terrorist groups employing chemical weapons. Specifically, it argues that terrorists have the capabilities to employ chemical weapons but will be constrained from using them. A thorough search of available open literature material from books, periodicals, and the internet was conducted to compile the facts of this paper. Limited discussion with terrorist experts on the Air War College staff and the Defense Threat Reduction Agency were also incorporated into this paper. With the exception of the Aum Shinrikyo, there is no open literature support for terrorist possession of a chemical weapon. Empirical evidence does support their ability to buy, steal, or build their own chemical weapon capability. Political, ideological and moral constraints preclude the traditional terrorist employment of a chemical weapon. However, there is a growing faction of terrorists, the religious radicals, who show a proclivity to use chemical weapons to further their cause. The United States has developed cogent policies and procedures to deter, detect and respond to the chemical weapon threat. Additionally, programs have been instituted to train first responders in all major American cities. In concluding, the paper recognizes that traditional terrorists are constrained from using chemical weapons but the religious radical is not.

## **Chapter 1**

### **Introduction**

*The potential for CBW attack against the United States represents one of the principal national security threats to our country in the 21<sup>st</sup> century.*

— Senator Jon Kyl  
— U.S. Republican Senator, Arizona

In the early 90's, we watched the Berlin Wall come down ending over forty years of Cold War. The division of Europe ended with the break-up of the former Soviet Union and the subsequent establishment of free and independent states among the previous Soviet Union republics. The bipolar world of East versus West ended leaving the United States as the dominant world power. The threat of communist expansion disappeared leaving no visible strategic threat to the United States and its allies. Yet, Senator Kyl's remark, in his opening statement as chair of the Senate Judiciary Subcommittee on Terrorism and Technology and the Senate Select Committee on Intelligence, highlights an emerging threat not only to the United States but to all nations of the world. This hearing convened on April 22, 1998 to discuss "Chemical and Biological Weapons Threats to America: Are We Prepared?" What prompted him to make this statement? Why was so august a group of individuals interested in the possibility of CB terrorism?

Terrorist activities are not confined to this century. Individuals and groups have used terrorist acts throughout history to attain their goals. Ancient combatants used noxious fumes of smoldering pitch and sulfur and catapulted cadavers over besieged city

walls to infect the populous. Some terrorists also used poisons on individuals, groups, or water sources. Armies used chemical weapons in World War I trench warfare and in the Iran-Iraq War. But, with few exceptions, there has not been large-scale terrorist use of chemicals to attack a civilian population.

We must first understand the nature of the threat to properly evaluate the risk of an international terrorist group using chemical weapons. We will define the chemical weapon threat and review the present state of chemical weapons capabilities among international terrorist groups. This review will include the possibility of terrorist groups buying, stealing, or generating their own chemical weapon capability. We will also identify sovereign governments who might assist terrorist groups in obtaining a chemical weapon capability and why they might provide this assistance.

Once we understand the threat, we will examine the potential terrorist use of chemical weapons. We will appraise possible terrorist motives to use chemical weapons and the constraints against their use. Then, we will discuss the instances when terrorists might feel compelled to employ chemical warfare.

Having discussed the threat, we will turn to US policy and response to acts of chemical terrorism. We will first examine US policies on chemical warfare defense, deterrence, and punishment as they pertain to international terrorists. In our examination, we will relate ideas of how to combat the chemical warfare threat and, if necessary, to deal with an act of chemical terrorism on American soil. The US government has recently enacted laws detailing the federal and state organizational responsibilities for initial and follow-on response as well as training for local emergency response agencies.

## **Chapter 2**

### **Evaluation of the Current Threat**

*A review of terrorist activities in the 20<sup>th</sup> century clearly reveals that terrorists can acquire and use lethal chemical, biological, and radiological agents—if they wish to do so.*

—Commander James K. Campbell, USN  
Author of *Weapons of Mass Destruction Terrorism*

There are many opinions regarding terrorist use of chemical weapons. Commander Campbell expressed the above view while testifying before the Senate Judiciary Subcommittee on Technology, Terrorism and Government Information and the Senate Select Committee on Intelligence. He addressed the question, “Chemical and Biological Weapons Threats to America: Are We Prepared?” Certainly, the Aum Shinrikyo use of the nerve gas sarin in the Tokyo subway lends credence to the view that terrorist groups can obtain and employ chemical weapons when they choose to do so. One must complete a careful review of the available evidence to determine whether this was an isolated incident or an omen for future terrorist actions.

#### **Chemical Weapon Defined**

A chemical weapon generally consists of two parts—an agent and a delivery system. An agent is a chemical substance used to kill, seriously injure, or incapacitate an individual or group of individuals by inducing a chemical reaction. This chemical effect

is what separates a chemical weapon from a conventional weapon's physical effect of blast and heat. Chemical agent properties include lethality, mode of action, speed of action, toxicity, persistence, and state. These properties determine the chemical agent's ability to induce a specific effect within a specific time frame, upon a specific target.

There are four categories of chemical agents--blood, nerve, vesicant, and choking. Blood agents such as hydrogen cyanide block the transport or use of oxygen. Tabun, sarin, soman are examples of nerve agents which kill through attacking body enzymes in the nervous system. Nerve agents are the most deadly chemical agent, causing death within minutes of exposure. Vesicants cause burns, inflammation, and destruction of the internal or external tissue of the body especially the skin, eyes, and the lungs. Mustard gas is a good example of a vesicant. Choking agents like phosgene and chlorine cause damage to the lungs.<sup>1</sup> Riot control agents, chemical herbicides, smoke and flame materials are generally excluded from the list of chemical agents although some third world countries consider these items to be chemical agents as well.

Chemical weapons can be delivered in various ways. Aerial bombs, artillery rockets, artillery shells, grenades, mines, missile warheads, and mortar rounds are possible employment munitions. Chemical agents can also be placed in a community's water supply. More controlled dissemination of a chemical agent can be attained using an air- or ground-based aerosol generator. These munitions fall into one of two states—unitary or binary. Unitaries carry only the agent while binary munitions have two precursor compounds that mix together to form the chemical agent before or during flight. Unitaries deliver more agent and binaries are safer to handle.<sup>2</sup>

The very nature of chemical agents requires specific controls in the production, handling and employment. The highly corrosive properties of chemical agent compounds require special non-corrosive containers, reactor vessels, heat exchangers, various pumps, valves, filters and other items for production and storage. Generally, these containers consist of nickel, nickel alloy, glass, ceramics, or other type material that can withstand the corrosion. Similar precautions must be taken in the storage, transportation, and use of the chemical agent to protect the workers and the handlers.

## **Current Terrorist Chemical Weapon Capabilities**

Assessing the state of current chemical weapons capability in terrorist groups is virtually impossible. Chemical weapons are hard to detect, so it is not easy to determine if a terrorist organization possesses a chemical capability. With the exception of the Aum Shinrikyo, a review of open literature produced only analytic observations concerning terrorist possession of chemical weapons. Richard Davis, Director, National Security Analysis, National Security and International Affairs Division noted terrorist interest in chemical weapons during his testimony before the Subcommittee on National Security, International Affairs and Criminal Justice, Committee on Government Reform and Oversight, House of Representatives. He reported that “according to the FBI, the threat of terrorists’ use of chemical and biological weapons is low, but some groups and individuals of concern are beginning to show interest in such weapons.”<sup>3</sup> David Kaplan also quotes FBI sources in stating that there has been a rise in credible WMD threats from a handful in 1995 to 40 in 1998.<sup>4</sup> In *America’s Achilles’ Heel*, the authors note that “no non-state actor is currently known to possess chemical weapons” with the exception of

the Aum Shinrikyo.<sup>5</sup> Thus, the only concrete evidence we find for terrorist possession of chemical weapons come from historical records.

Historically, we find that several terrorist groups have either used or threatened the use of chemical weapons. The Aum Shinrikyo certainly demonstrated they possessed a rudimentary chemical weapon capability. The investigation of the 1993 World Trade Center bombing also revealed that Ramzi Yousef showed interest in using a chemical weapon in that attack but did not due to lack of time and money.<sup>6</sup> In 1991, German authorities broke up a neo-Nazi plot to pump hydrogen cyanide into a synagogue.<sup>7</sup> A Palestinian group injected cyanide into Jaffa oranges in 1978 to damage Israeli citrus fruit exports.<sup>8</sup> While these instances show that terrorist groups have attempted to use chemical agents for destructive purposes, there is little open source evidence of any terrorist organization possessing a chemical weapon that could be used to cause mass casualties.

## **Obtaining a Chemical Weapon Capability**

Chemical weapons and the technology to produce them have existed before World War I. The process to make mustard gas dates back to mid-nineteenth century.<sup>9</sup> The procedure to create the nerve agent sarin has been in open literature for the last 50 years.<sup>10</sup> *The Terrorist's Handbook* provides detailed instructions for making chemical weapons.<sup>11</sup> Likewise, the precursor materials to create a chemical agent are more accessible with the spread of chemical and pharmaceutical industries worldwide.<sup>12</sup> Over twenty-three nations have confirmed or strongly suspected chemical weapons capabilities with several more nations suspected as trying to develop chemical agents.<sup>13</sup> This environment provides a terrorist group the opportunity to buy, steal, or generate their own chemical weapons capability. As the retired FBI Assistant Director and Chief of the FBI

Counterterrorism Section noted in a recent article, “biological and chemical weapons are certainly available to sophisticated terrorist organizations, especially those, like many of the Middle East groups, that operate with the support of governments.”<sup>14</sup>

Economic turmoil in states that possess a chemical weapon capability could create the opportunity for terrorist organizations to buy or steal a chemical weapons capability. The former Soviet Union is undergoing such economic turmoil at this time. Russia has over 40,000 tons of chemical agent stockpiled at seven locations. “Uncertainties regarding dispersal, and management procedures concerning that stockpile, suggest that some chemical weapons could be lost while awaiting destruction.”<sup>15</sup> From 1991 to 1998, Representative Curt Weldon (R-PA) documented 37 illegal arms and technology transfers from Russia and China to other countries. He also noted that any terrorist group could obtain any material or technology they wanted from Russia, China, North Korea, or other sources.<sup>16</sup> Well-financed terrorist groups could purchase an agent from an economically deprived Russian worker, pay for someone to steal an agent from the Russian stockpile, or obtain the weapon from China, North Korea or other sources.

The similar production processes between some chemical agents and commercial/industrial applications provide an avenue that an international terrorist group could exploit. Both use standard chemical processing materials such as reactor vessels to contain the actual production; distillation columns and filters to separate and purify the compounds; heat exchangers to control the temperature; and pumps, valves and lines to control the flow of chemicals. For example, the precursor chemicals and intermediate stages in the production of some pesticides are similar to the production of nerve and blister agents. The addition of a chlorinating step in the production of ballpoint pen ink

converts thiodiglycol into a mustard agent.<sup>17</sup> While these standard processing items are made of special material such as nickel or nickel alloy due to the highly corrosive nature of chemical compounds, it is relatively easy for terrorists to develop a well thought out plan to purchase them.

Armed with the necessary precursors and the open chemical weapons knowledge, two technicians operating from a simple laboratory and a small machine shop could produce a chemical agent and delivery system. One technician would need experience in chemistry or chemical engineering and the other would need the ability to build simple devices for agent dissemination. This production capability could be built for tens of thousands of dollars. The time to produce a chemical weapon in this fashion would depend on the production group's size, knowledge, finances, and skills and on the sophistication and size of the weapon sought.

### **State-Sponsored Terrorism**

States may be reluctant to assist terrorist organizations in acquiring chemical weapons for several reasons. First, states may fear retaliation from the targeted entity. The United States Department of State lists Iran, Iraq, Syria, Sudan, Libya, Cuba, and North Korea as states that have sponsored terrorism as a tool of their foreign policy.<sup>18</sup> In doing so, each of these states have suffered political, economic or other retribution as a result of their assistance. State-sponsored use of chemical weapons would only bring more sanctions, if not military action, against the sponsoring state. Second, the moral legitimacy associated with state-sponsored terrorism during the Cold War has dissolved, creating greater risks for states to sponsor such actions.<sup>19</sup> Third, the real possibility exists that a terrorist group could use the state-supplied chemical weapon on the state itself.

States would need firm control of a terrorist group to supply them with a chemical weapon.<sup>20</sup> Finally, the international stigma against the use of weapons of mass destruction deters states from sponsoring terrorist acquisition of chemical weapons.<sup>21</sup>

## Notes

<sup>1</sup> Richard A. Falkenrath, Robert D. Newman, and Bradley A. Thayer. *America's Achilles' Heel*. Cambridge, Mass.: The MIT Press, 1998, p. 17. Brig Gen Russ Zajtchuk, Medical Corps, U.S. Army, ed. *Textbook of Military Medicine: Medical Aspects of Chemical and Biological Warfare*. Washington, DC: The Office of the Surgeon General, U.S. Army, 1997, p. 10.

<sup>2</sup> *The Biological and Chemical Warfare Threat*, CIA, pp. 23-28.

<sup>3</sup> Davis, Richard, Director, National Security Analysis, National Security and International Affairs Division. Testimony before the Subcommittee on National Security, International Affairs and Criminal Justice, Committee on Government reform and Oversight, House of Representatives. "Combating Terrorism: Observations on Crosscutting Issues." United States General Accounting Office, GAO/T-NSIAD-98-164, p. 2.

<sup>4</sup> Kaplan, David E. "Terrorism's Next Wave: Nerve gas and germs are the new weapons of choice." *U.S. News Online*, November 17, 1997. Online. Internet, 29 October 1998. Available from <http://www.usnews.com/usnews/issue/971117/17weap.htm>, p. 2.

<sup>5</sup> Falkenrath, p. 18.

<sup>6</sup> Senator Jon Kyl. Opening statement before the Senate Judiciary Subcommittee on Terrorism and Technology and the Senate Select Committee on Intelligence. *Chemical and Biological Weapons Threats to America: Are We Prepared?* Internet. On-line, 6 December 1998. Available from <http://www.chem-bio.com/resource/kyl.html>, p. 2.

<sup>7</sup> "Terrorists' Use of Chemical Weapons", *International Encyclopedia of Terrorism*. Chicago, IL: Fitzroy Dearborn Publishers, 1997, p. 246.

<sup>8</sup> Ibid., p. 243.

<sup>9</sup> Ibid., p. 158.

<sup>10</sup> Ibid., p. 159.

<sup>11</sup> David E. Kaplan. "Terrorism's Next Wave," *U.S. News Online*, 17 November 1997. On-line. Internet, 29 October 1998. Available from <http://www.usnews.com/usnews/issue/971117/17weap.htm>, p. 1.

<sup>12</sup> Zajtchuk, p. 118.

<sup>13</sup> Ibid., p. 115.

<sup>14</sup> Pomerantz, Steve. "Counterterrorism in a Free Society", *Journal of Counterterrorism & Security International*, Spring 1998, Vol 5, Number 1, p. 24.

<sup>15</sup> Zajtchuk, p. 116.

<sup>16</sup> Executive Summary containing paraphrased excerpts of speeches from Rep Curt Weldon (R-PA), Professor Yonah Alexander, Ambassador David Miller, Dr. Gordon Oehler, and BG Walt Busbee, USA (Ret.) on "The Increasing Threat of Terrorism." Potomac Institute for Policy Studies, 7 October 1998, p. 1.

## **Notes**

<sup>17</sup> Office of the Secretary of Defense. "Accessible Technologies," *Proliferation: Threat and Response*, April 1996, p. 10.

<sup>18</sup> Louis J. Freeh, Director, Federal Bureau of Investigation, Statement before the Senate Judiciary Committee, September 3, 1998. *U.S. Government's Response to International Terrorism*. On-line. Internet, 29 October 1998. Available from <http://www.fbi.gov/congress/terror.htm>, p. 2. Falkenrath, p. 94.

<sup>19</sup> Falkenrath, p. 94.

<sup>20</sup> Ibid., p. 94.

<sup>21</sup> Ibid., p. 95.

## **Chapter 3**

### **Future Terrorist Use of Chemical Weapons**

*The growth of religious terrorism and its emergence in recent years as a driving force behind the increasing lethality of international terrorism shatters some of our most basic assumptions about terrorists and the violence they commit. It also raises questions about the continued relevance of much of the conventional wisdom on terrorism—particularly as it pertains to potential future use of WMDs.*

Bruce Hoffman  
Director of the Center for the Study  
of Terrorism and Political Violence

Terrorists are not mentally deranged individuals who commit acts of terrorism indiscriminately. They are generally highly trained, intelligent, rational individuals who band together for a common cause--political, religious, economic, social or otherwise. They commit acts of violence to draw attention to their cause and to further their interests. A review of past terrorist acts shows that they were carefully orchestrated to achieve a certain level of violence, but certainly not the mass casualties associated with WMDs. What would motivate a terrorist organization to use a WMD to create mass casualties? Are there any constraints against their use of a WMD? When would you expect a terrorist to use a WMD?

## **Motivation to Use**

Traditional terrorist organizations' philosophy and ideology would preclude them from using chemical weapons. Their actions are aimed at achieving specific goals as noted above. They want enough casualties to draw attention to their cause but not the retaliation and backlash likely with the use of chemical weapons. They are not interested in inflicting the mass casualties that mentally unstable, paranoid psychotics usually commit.<sup>1</sup> They consider indiscriminate violence immoral.<sup>2</sup> However, the face of terrorism seems to be changing.

Religious ideology is becoming more of a factor in terrorist use of chemical weapons. More terrorists are embracing radical, religious beliefs that espouse racist/ethnic hate, redemptive fanaticism, or apocalyptic millennialism. These beliefs are tangentially illustrated in the Bosnian and African ethnic-centered conflicts. While terrorists are not the active militants of the Bosnian and African conflicts, these ethnic cleansing hostilities show the depth individuals/groups are willing to go in the name of racist/ethnic hate. We can also see these beliefs in the rhetoric of terrorist groups such as Hamas and Hezbollah, which believe God has directed them to strike out at their enemy. These terrorists believe their aim is to inflict maximum casualties regardless of the consequences. They want to "send a message that creates a superordinary sense of overwhelming fear, and vulnerability amongst their "enemies."<sup>3</sup> What these religious radical groups have in common is a willingness and desire to cause mass casualties. They are not interested in the traditional terrorist modus operandi to cause only enough violence to obtain attention for their cause. They do not want mass media attention for their cause. They believe they are executing the will of their God. These groups are

more prone to use chemical weapons against their religious enemies to create mass casualties in the name of their God.<sup>4</sup>

The US dominance and the general popular fear of WMDs could motivate a terrorist group to threaten or actually employ chemical weapons in a limited environment. The United States has become the dominant world power with the demise of the Soviet Union. The world watched and took notes as we employed our tremendous firepower in Desert Storm. A recent Kuwaiti speaker noted, “Desert Storm illustrated the futility of taking on the United States without nuclear weapons.”<sup>5</sup> Terrorists may consider it useless to attack the US with conventional weapons and resort to WMDs. An added benefit to them is the fear civilian populations have of WMDs since our civilian population has little defense against WMDs. Terrorists have shown they can infiltrate and employ violence in every part of the world. A well-placed chemical weapon or the threat of such could gain tremendous concessions for the employing terrorist group.<sup>6</sup>

## **Constraints on Use**

Several political constraints hinder terrorist use of chemical weapons. The use of such a weapon could overshadow the cause the terrorist was trying to promote and alienate his/her supporters.<sup>7</sup> The infliction of mass casualties risks stronger countermeasures against terrorist activities from the targeted country, severely limiting or eliminating the terrorists’ ability to conduct further operations. Likewise, the state where the terrorist resides could encounter severe political and economic sanctions from the international community and even military action against the terrorist group. Another issue is the increased risk of using chemical weapons to the terrorists. Dealing with chemical agents is an extremely hazardous job. Carelessness in agent production and

transport could cause release of the agent in “friendly territory” and cause a backlash on the terrorist organization. Also, internal strife could be created if terrorists who morbidly fear working with chemical agents are made to work with them against their will.<sup>8</sup>

Moral inhibitions within the terrorist group and the world society could constrain the terrorist use of chemical weapons. As previously discussed, terrorists generally considerate indiscriminate acts of violence immoral. Raising the level of violence that could conceivably be achieved with a chemical weapon could create internal dissension within the terrorist organization. Additionally, the international community and the general public consider the use of chemical weapons an immoral act.<sup>9</sup>

The economic effect of terrorist use of chemical weapons is less of a constraint than the political and moral inhibitions. The relatively low cost of building or acquiring a chemical weapon does not put a strain on the terrorist organization finances. As previously noted in this paper, a terrorist group could build a chemical weapon with only tens of thousand of dollars. However, use of such a weapon could result in the loss of the terrorist group’s financial backer. The significant public opinion against use of chemical weapons could convince the financial sponsor to reduce or eliminate the terrorist group’s funding. Economic export controls on the chemical precursors could hinder the procurement of necessary chemicals to manufacture a chemical agent. Chemical exporters are aware of the military application of their products and the applicable law enforcement notification requirements if they discover an inappropriate purchase. However, a well-thought out acquisition plan could negate these controls. The dual use nature of the precursors provides cover for a terrorist organization to purchase small

quantities of the necessary chemicals or allows for terrorists to set up a legitimate front to purchase the necessary chemicals.<sup>10</sup>

The Chemical Weapons Convention (CWC) offers minimal protection against small-scale purchases of chemical precursors. The Organization for the Prohibition of Chemical Weapons (OPCW) was established under Article VIII of the Convention “to achieve the object and purpose of this Convention, to ensure the implementation of its provisions, including those for international verification of compliance with it, and to provide a forum for consultation and cooperation among States Parties.”<sup>11</sup> Article VIII further established the Technical Secretariat as the OPCW arm for conducting the verification and inspection responsibilities. The CWC verification process, however, is designed to detect large-scale chemical purchases that could be used to establish a military chemical weapons program, not the smaller purchases that terrorists could use to make simple chemical weapons. The CWC challenge procedures also favor large-scale production sites. While the Technical Secretariat could respond to a request to verify a small production facility, they do not routinely accomplish this action. And, the Technical Secretariat cannot inspect sites in states that are not signers of the Convention.<sup>12</sup> These twelve non-signatory states include Angola, Belize, Egypt, Somalia, Mozambique, Lebanon, a former Republic of Yugoslavia, Libya, Iraq, Sudan, Syria, and North Korea. The latter five states have sponsored terrorism as a tool of their foreign policy as noted earlier in this paper.

## **When Terrorists Might Use Chemical Weapons**

The convergence of four factors could result in a terrorist group using a chemical weapon. First, the terrorist group must be capable of acquiring and using a chemical

weapon. The production and use of such a weapon is within the grasp of any well-financed and organized terrorist organization as we have shown in this paper. Second, the group must have a desire to create mass casualties. The more extreme, radical religious groups like the Aum Shinrikyo show a propensity for achieving mass casualties. Third, the breakdown of order within established terrorist groups could create the conditions for more them wanting to inflict mass casualties. Last, the terrorist organizations would have to believe that using a chemical weapon to inflict mass casualties was their only or best option. The overwhelming military, political, and economic capabilities of the United States leave little room for an adversary to attack us. The Gulf War showed the world the tremendous firepower we can bring to bear on an enemy. Future adversaries could resort to guerrilla warfare, to include use of chemical weapons, to obtain a comparative advantage. So far, only the Aum Shinrikyo have exhibited these four factors in their chemical attack in the Japan subway.<sup>13</sup>

Current actions within the Osama bin Laden terrorist organization provides some insight into a possible scenario for terrorist use of chemical weapons. Osama bin Laden has formed an alliance with Iraq President Saddam Hussein that could give his group access to chemical weapons. Additionally, Palestinian terrorist Abu Nidal and a renowned Palestinian bomb designer are in Iraq.<sup>14</sup> This combination gives Osama bin Laden probable access to a chemical weapon, an expert terrorist planner, and an expert bomb maker, creating the condition to which the four parameters described above could be satisfied. First, bin Laden could have a chemical weapon supplied by Iraq or build one using Iraqi chemical agents. Second, he could have a desire to use that weapon since the United States dealt a brutal blow to bin Laden's organization with the 1998 bombing of

his Afghanistan camps. This action showed the overwhelming military power of the United States to reach beyond distant state borders to attack terrorist organizations and left little room for anything other than an asymmetric response. Third, while there does not seem to be any breakdown of order within bin Laden's organization, the Afghanistan attack did disrupt his operations. Last, Osama bin Laden could see use of a chemical weapon as his only option given the military, political and economic power of the United States.

## Notes

<sup>1</sup> Falkenrath, p. 60.

<sup>2</sup> Cole, p. 166.

<sup>3</sup> Commander James K. Campbell, USN. Testimony before the Senate Judiciary Subcommittee on Technology, Terrorism and Government Information and the Senate Select Committee on Intelligence on "Chemical and Biological Weapons Threats to America: Are We Prepared?" 22 April 1998. On-line. Internet, 29 October 1998. Available from <http://www.senate.gov/~judiciary/campbell.htm>, p. 4.

<sup>4</sup> Ibid., pp. 3-4. Pomerantz, Steve. "Counterterrorism in a Free Society." *Journal of Counterterrorism & Security International*, Vol 5, no. 1 (Spring 1998), pp. 23-24. Bruce Hoffman. *Inside Terrorism*. New York, NY: Columbia University Press, 1998, pp. 197-205.

<sup>5</sup> Kuwaiti Diplomat speech at Air War College, 2 December 1998.

<sup>6</sup> Campbell, p. 5.

<sup>7</sup> Cole, p. 166.

<sup>8</sup> Falkenrath, pp. 45-46.

<sup>9</sup> Cole, p. 166.

<sup>10</sup> Falkenrath, pp. 109-110.

<sup>11</sup> "Article VIII, The Organization, General Provisions, Item A1." *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* (corrected version), 8 August 1994, p17.

<sup>12</sup> Ibid., p. 111.

<sup>13</sup> Ibid., pp. 167-170.

<sup>14</sup> "Terror Trend: Iraq, terrorist alliance worries U.S. officials," *Montgomery Advertiser*, 14 February 1999, p. 2AA.

## **Chapter 4**

### **United States Response**

*The proliferation of weapons of mass destruction and their means of delivery continues to pose an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States.*

—President Clinton  
*U.S. Newswire*, 12 November 1998

The United States has steadily increased its security posture regarding the threat of international terrorism. The government recognized the threat as early as 1972 when the Nixon administration set up an anti-terrorist committee in the Secretary of State's office.<sup>1</sup> President Reagan issued an Executive Order in 1983 making the Federal Bureau of Investigation (FBI) the lead agency for countering domestic terrorism in the US. Congress increased these responsibilities with subsequent legislation in 1984 and 1986 allowing the FBI to exercise federal jurisdiction overseas when terrorists murdered, assaulted, or took a United States national hostage and when certain United States interests are attacked.<sup>2</sup> President Reagan also issued a directive in 1986 calling for the Department of Defense to counter narco-terrorism. But, it was not until the 1990's that the threat of WMDs caused the government to enact specific legislation dealing with WMDs.

## **United States Policies**

The United States has made the fight against terrorism and WMDs a top national security objective. Through a series of Executive Orders, Presidential Decision Directives, and congressional legislation, the United States has established policies to deter and prevent terrorist attacks, to reduce the proliferation of WMDs, and to provide for the crisis and consequence management of a terrorist act at home and abroad.

Executive Order 12938 (Appendix A), issued on 14 November 1994, declared a national emergency because of the dangers of WMD proliferation. This order provided “penalties for contributions to the efforts of any foreign country, project or entity to use, acquire, design, produce, or stockpile chemical or biological weapons.”<sup>3</sup> It was strengthened with the issue of Executive Order 13094 (Appendix B) on 28 July 1998. The expanded order adds attempts or actual contributions to foreign proliferation activities and increases the range of potential penalties. These penalties include prohibitions against the United States government providing assistance for any proliferation activities of any foreign persons and United States government procurement and imports into the United States. President Clinton extended the Executive Order 12938 on 14 November 1998 to continue combating WMD proliferation.<sup>4</sup>

President Clinton has also issued four Presidential Decision Directives dealing with WMDs and terrorists. On 21 June 1995, he issued Presidential Decision Directive 39 (PDD-39) (Appendix C), which “seeks to integrate the roles of all pertinent federal agencies into a comprehensive, proactive program to prevent and punish terrorist acts.”<sup>5</sup> This PDD notes that one of the United States’ highest priorities is stopping terrorists from

acquiring WMDs.<sup>6</sup> A 1998 General Accounting Office report notes the three key elements for combating terrorism contained in this PDD:

1. reducing vulnerabilities to terrorist attacks and prevent and deter terrorist acts before they occur;
2. respond to terrorist acts that do occur—crisis management—and apprehend and punish terrorists; and
3. manage the consequences of terrorist acts, including restoring capabilities to protect public health and safety and essential government services and providing emergency relief.<sup>7</sup>

In defining federal agencies' roles and responsibilities, this PDD notes that if terrorist acts occur, the US will respond quickly and decisively. The next two PDDs build on the foundation established by PDD-39. PDD-62 (Appendix D) provides a more focused, systematic approach to fighting terrorism, clarifies the roles and responsibilities of federal agencies, and establishes the office of National Coordinator for Security, Infrastructure Protection and Counter-Terrorism. This office will serve as the National Coordinator to oversee all policies and programs related to counter-terrorism, critical infrastructure protection, and preparedness and consequence management for WMDs.<sup>8</sup> PDD-63 (Appendix E) establishes a national effort for protecting the increasingly vulnerable and interconnected infrastructure of the United States from all threats.<sup>9</sup> Finally, PDD-77 establishes procedures for the return of terrorists to stand trial in the United States for terrorist acts committed against America and its citizens.<sup>10</sup>

Congress has enacted legislation that strengthened law enforcement agencies' capability to cope with terrorist acts involving WMDs, modified the United States civil code to allow more assistance from the Department of Defense, and supported international efforts to ban use of chemical weapons. The Antiterrorism and Effective Death Penalty Act of 1996 gave the FBI the authority to seize terrorist assets, disrupting

their activities. It also authorized the Attorney General and Secretary of State to block funds of certain Foreign Terrorist Organizations.<sup>11</sup> The Act further allows the use of military to respond to terrorist incidents involving the use of chemical weapons.<sup>12</sup> Finally, Congress ratified the Chemical Weapons Convention Treaty in 1997 banning the use of chemical weapons.<sup>13</sup>

The United States has long maintained a no first use policy for its chemical weapons. This policy began in 1943 when President Franklin D. Roosevelt declared the United States would not initiate any chemical warfare action but would retaliate in kind against any such attack. President Nixon reaffirmed this policy in 1969 and took the additional step of initiating actions to stop production of chemical weapons and to destroy any stockpiles left from World War II production. While the United States Army revived interest in producing new binary weapons in the 1980s, they were simultaneously working toward a chemical treaty with the Soviet Union. These efforts resulted in the United States signing a bilateral chemical weapons destruction agreement with the Soviets in 1990. The Secretary of Defense cancelled the Army's new binary weapon production program in support of this agreement.<sup>14</sup>

The Department of Defense Appropriation Act of 1986 (Public Law 99-145) directed the safe and efficient destruction of the existing United States chemical weapon stockpiles by 1994. These stockpiles are located at Anniston, Alabama; Blue Grass, Kentucky; Edgewood, Maryland; Newport, Indiana; Pine Bluff, Arkansas; Pueblo Colorado; Tooele, Utah; Umatilla, Oregon; and Johnston Island. The Army was not able to meet the initial congressionally mandated destruction date since they encountered numerous technical difficulties in developing a safe and efficient chemical agent

destruction program. Congress obligingly extended the mandatory destruction date to July 1999. The Army has begun chemical agent destruction at Johnston Island and Tooele, Utah with decontamination and removal facilities under construction at the remaining sites<sup>15</sup>.

## **How to Combat the Chemical Weapon Threat**

A nation must employ intelligence assets, law enforcement, diplomacy, sanctions, training, and military forces to combat the chemical weapon threat effectively. A comprehensive program uniting the intelligence and the law enforcement agencies into a seamless network provides the best defense against the threat. An active civilian and military intelligence capability provides the early warning and indications of a chemical threat that enables the appropriate law enforcement agency to stop the terrorist act from happening. It also allows the targeted state to take appropriate action against the perpetrator. Multilateral diplomacy enables the development of cogent international policies to deal with terrorists and the threat of WMDs. Diplomacy also establishes the framework for states to agree on the rendering of terrorists to stand trial for their actions. States use sanctions to limit a terrorist group's capability to acquire the materials needed to produce chemical weapons. A comprehensive training program will ultimately provide the local emergency responders with the tools needed to treat victims and conduct clean up operations gives the state the ability to deal effectively and efficiently with chemical incidents. Military forces can be used to respond to terrorist acts involving chemical weapons and they can train the local first responders. If necessary, military forces can also be used in direct action against a terrorist organization.<sup>16</sup>

The threat of unconstrained retaliation is one of the major inhibitions against the use of chemical weapons. States possessing a chemical weapons capability have made it abundantly clear that they would use all means, to include use of their chemical weapon stockpile, against any group or nation which would employ such a weapon against them. “Most defense analysts agree that a chemical attack would certainly provoke retaliation with nuclear weapons, a primary reason why chemical weapons are rarely used.”<sup>17</sup> This threat also works against any state sponsorship of chemical terrorism. States, which would back such action, are cognizant of the possible destruction they could face if they were tied to the chemical act of terrorism. The United States attack of Osama bin Laden’s terrorist camp in Afghanistan is an example of a nation’s effort to combat conventional terrorism.

## **Domestic Preparedness**

Federal agencies have become increasingly involved in developing capabilities to combat chemical weapons and coordinate emergency response to a chemical weapon attack. Public Law 93-288 established the authority for the federal government to respond to disasters and emergencies. In 1988, Public Law 100-707 amended 93-288 to authorize the federal government to provide assistance in saving lives, and to protect health, safety, and property.<sup>18</sup> PDD-39 further refined federal agencies’ roles in domestic preparation for and response to terrorist acts. The Department of Justice (DoJ) was designated the lead agency for crisis management of domestic incidents and the Federal Emergency Management Agency (FEMA) was designated the lead agency for consequence management for domestic incidents. Crisis management refers to the disarming or rendering of a WMD safe after the perpetrators have been discovered but

the weapon has not been activated. If the weapon is activated, FEMA will coordinate local, regional, state, national, or international response to treat victims and conduct clean up efforts. Consequence management also includes preparatory work to assess the capabilities of local emergency forces to respond to an actual attack, such as surveys to determine local hospital capability to treat victims, identify locations of antidotes, etc.<sup>19</sup>

The Department of Defense (DoD) was given the interagency lead to enhance US government capability to respond to terrorist use of chemical weapons with the passage of the “Defense Against Weapons of Mass Destruction Act” of 1996. The United States Army Chemical and Biological Defense Command was given lead of the interagency training effort to improve the ability of local fire, police, emergency medical and hazardous material personnel to respond to WMD terrorist acts. On 1 October 1998, this command was combined with the United States Army Soldier Systems Command to form the United States Soldier and Biological Chemical Command (SBCCOM) located at the Edgewood Area of Aberdeen Proving Ground, Maryland.<sup>20</sup> In February 1999, DoJ took over management responsibility for the interagency training program per an agreement with SBCCOM. SBCCOM will continue to provide training under this agreement. Over 5,000 first responders have completed the “train-the-trainer” program enabling them to provide training to the rest of the emergency responders in their city.<sup>21</sup> Marine Corps Commandant General Krulak took the initiative to establish the Chemical-Biological Incident Response Force (CBIRF) in the fall of 1995. The CBIRF is composed of Marine Corps elements of reconnaissance, detection, decontamination, medical, security, and support. It can “provide command and control support to the civilian incident site commander; conduct detection in a contaminated environment; insert Navy doctors into a

hot zone for immediate triage of the more serious cases; decontaminate the victims; and turn the victims over to the local health authorities outside the hot zone.”<sup>22</sup> The DoD has also established ten Rapid Assessment and Initial Detection (RAID) teams in the National Guard and Reserve that are dedicated to assisting local civilian authorities in the event of a chemical attack.<sup>23</sup>

Other federal agencies are also contributing to the effort. A Department of Energy laboratory is offering its consequence management services in the event of a chemical incident. The Public Health Service is establishing 25 Metropolitan Medical Strike Teams throughout the country to augment its three deployable National Medical Response Teams and existing Disaster Medical Assistance Teams.<sup>24</sup> As the statutory authority to prepare and respond to hazardous substances, the Environmental Protection Agency (EPA) has numerous teams such as the Environmental Response Teams and On-Scene Coordinators that can assist in the consequence management of a chemical release.<sup>25</sup>

## Notes

<sup>1</sup> “The American Response to Terrorism,” *International Encyclopedia of Terrorism*. Chicago, IL: Fitzroy Dearborn Publishers, 1997, p. 641.

<sup>2</sup> US Senate. “U.S. Government’s Response to International Terrorism.” Statement of Louis J. Freeh, Director Federal Bureau of Investigation before the Senate Judiciary Committee, United States Senate, September 3, 1998. On-line. Internet, 29 October 1998. Available from <http://www.fbi.gov/congress/terror.htm>, p. 3.

<sup>3</sup> President William J. Clinton. “Text of Clinton Letter on Weapons of Mass Destruction.” *U.S. Newswire*, 12 November 1998, p. 1.

<sup>4</sup> *Ibid.*, pp. 1-2.

<sup>5</sup> H. Allen Holmes. “Domestic Preparedness: U.S. Responses Need Tuning;” *Defense Issues*, Vol 13, no. 33. On-line. Internet, 16 October 1998. Available from <http://www.defenselink.mil/speeches/1998/di1333.html>, p. 9.

<sup>6</sup> Judith Miller and William J Broad. “Clinton Expected to Back Plan to Deter Terrorist Attack,” *New York Times*, 26 April 1998, p. 1.

<sup>7</sup> Richard Davis, Director, National Security Analysis, National Security and International Affairs Division. Testimony before the Subcommittee on National Security,

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International Affairs and Criminal Justice, Committee on Government reform and Oversight, House of Representatives. "Combating Terrorism: Observations on Crosscutting Issues." United States General Accounting Office, GAO/T-NSIAD-98-164, p. 3.

<sup>8</sup> "Combating Terrorism: Presidential Decision Directive 62." The White House, Office of the Press Secretary. On-line. Internet, 13 January 1999. Available from <http://www.ciao.gov/62factsheet.htm>, p. 1.

<sup>9</sup> White Paper. "The Clinton Administration's Policy on Critical Infrastructure Protection: Presidential Decision Directive 63," May 1998. On-line. Internet, 13 January 1999. Available from <http://www.ciao.gov/paper598.html>, pp. 1-10.

<sup>10</sup> Freeh, p. 5.

<sup>11</sup> Ibid., p. 4.

<sup>12</sup> US Senate. "The Threat of Chemical and Biological Weapons." Statement of Janet Reno, Attorney General, before the Subcommittee on Technology, Terrorism and Government Information Committee on the Judiciary and Select Committee on Intelligence, United States Senate, April 22, 1998. On-line. Internet, 29 October 1998. Available from <http://www.senate.gov/~judiciary/reno422.htm>, p. 5.

<sup>13</sup> ABC News. "Types of Chemical Weapons." On-line. Internet, 12 December 1998. Available from [http://more.abcnews.go.com/sections/us/terrorism\\_chemical/index.html](http://more.abcnews.go.com/sections/us/terrorism_chemical/index.html), p. 1.

<sup>14</sup> Jeffery K. Smart. "US Army Soldier and Biological Chemical Command: History." On-line. Internet, 23 February 1999. Available from [http://www.cbdcom.apgea.army.mil/sbccom/au\\_history.html](http://www.cbdcom.apgea.army.mil/sbccom/au_history.html), pp. 1-5.

<sup>15</sup> U.S. Congress, Office of Technology Assessment, *Disposal of Chemical Weapons: Alternative Technologies—Background Paper*, OTA-BP-O-95, June 1992, p. 1-5.

<sup>16</sup> Larry C. Johnson. Excerpt of testimony before the Subcommittee on National Security, International Affairs, and Criminal Justice. "The Changing Terrorism Threat: Is the US Prepared?" *Journal of Counterterrorism & Security International*, Vol 5, no. 2, Summer 1998, pp. 54-58.

<sup>17</sup> ABC News. "Types of Chemical Weapons," p. 1.

<sup>18</sup> Federal Emergency Management Agency, "Federal Response Plan." On-line. Internet, 13 January 1999. Available from <http://www.fema.gov/femz/plan1.html>, p. 1.

<sup>19</sup> Chris Seiple. "Consequence Management: Domestic Response to Weapons of Mass Destruction," *Parameters, US Army War College Quarterly*, Vol XXVII, no. 3, Autumn 1997, pp. 120-121.

<sup>20</sup> Smart, pp. 1-5.

<sup>21</sup> Holmes, p. 5.

<sup>22</sup> Seiple, p. 123.

<sup>23</sup> Davis, p. 4.

<sup>24</sup> Ibid, p. 4.

<sup>25</sup> "EPA Capabilities: Responding to Nuclear-Biological-Chemical (NBC) Terrorism." On-line. Internet, 13 January 1999. Available from <http://www.epa.gov/swercepplpubls/cntr-ter.html>, pp. 1-5.

## **Chapter 5**

### **Conclusions**

With the lone exception of the Aum Shinrikyo, there is no evidence to support terrorist possession of a chemical weapon; however, they can obtain a chemical weapon capability if they chose to do so. The political and social unrest in such states as Russia provides an opportunity for terrorists to purchase a chemical agent or a chemical weapon. It also affords them the opportunity to steal such capability. Moreover, the explosion of information and technology has given terrorists the tools to produce a chemical weapon. Formulas for the production of mustard gas and other chemical agents are available on the internet and have even been published in terrorists' handbooks. The chemicals needed to produce a chemical agent can easily be obtained in the requisite quantities since they have dual commercial and industrial applications. Two technicians could build a capable chemical weapon with minimal cash and a small lab and machine shop. While less likely to occur, a terrorist organization could obtain the chemical weapon from a state sponsoring terrorism.

The radical religious groups pose more of a threat than the traditional terrorists. Traditional terrorists are more interested in gaining attention for their cause. They do not want to inflict mass casualties if they can achieve their goals through the use of conventional weapons. We have seen, however, the rise of radical religious groups

whose ideology supports use of chemical weapons. They are not interested in making a political statement. These extremists believe they are doing the will of their God in slaying individuals who are not of the same faith.

Several constraints exist that could restrain a terrorist organization from using a chemical weapon. The fear of mass retaliation from the target state could deter a terrorist organization from such use. The terrorists could also face severe backlash from the state that lets them occupy their territory if the subject state were on the receiving end of harsh political or economic sanctions or military action. The CWC offers limited constraint to terrorist organizations acquiring a chemical weapon capability. Likewise, economic sanctions offer minimal constraint since terrorist organizations generally possess the dollars needed to buy, steal or build a chemical weapon capability. None of these constraints would prevent the extremist religious group from acquiring a chemical weapon.

The United States recognized the threat posed with chemical weapons early in the 1990's and made the fight against WMDs a national objective. The United States has maintained a policy of no first use of chemical weapons since 1943. The government also maintains its right to respond with all forces available, to include nuclear weapons, should a group use chemical weapons on the American people. Numerous Presidential Decision Directives, Executive Orders and congressional laws have been enacted to give the government a crisis response and consequence management capability. Programs have been initiated to better integrate intelligence and law enforcement efforts to prevent acts of terrorism and identify the source of the threat. Numerous federal agencies have developed expanding roles in the consequence management of a chemical weapon

incident. Thus, the United States has established a rudimentary capability for local emergency response personnel to cope with chemical weapon incidents. Although this capability is limited at this time, efforts are ongoing to expand emergency response capabilities in over 120 American cities.

Terrorist use of chemical weapons is unlikely. WMDs pose a low probability, high consequence event that cannot be taken for granted. The catastrophic results of a single incident warrant the heightened government emphasis in the 1990's. The United States must continue to improve its policy, emergency response, and law enforcement capabilities to deal with domestic and international terrorism in the 21<sup>st</sup> Century.

## **Appendix A**

### **Executive Order 12938**

The White House  
Office of the Press Secretary

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For Immediate Release

November 14, 1994

Executive Order  
#12938

#### **Proliferation Of Weapons Of Mass Destruction**

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the International Emergency Economic Powers Act (50 U.S.C. 1701 et seq.), the National Emergencies Act (50 U.S.C. 1601 et seq.), the Arms Export Control Act, as amended (22 U.S.C. 2751 et seq.), Executive Orders Nos. 12851 and 12924, and section 301 of title 3, United States Code,

I, William J. Clinton, President of the United States of America, find that the proliferation of nuclear, biological, and chemical weapons ("weapons of mass destruction") and of the means of delivering such weapons, constitutes an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States, and hereby declare a national emergency to deal with that threat.

Accordingly, I hereby order:

**Section 1. International Negotiations.** It is the policy of the United States to lead and seek multilaterally coordinated efforts with other countries to control the proliferation of weapons of mass destruction and the means of delivering such weapons. Accordingly, the Secretary of State shall cooperate in and lead multilateral efforts to stop the proliferation of weapons of mass destruction and their means of delivery.

**Sec. 2. Imposition of Controls.** As provided herein, the Secretary of State and the Secretary of Commerce shall use their respective authorities, including the Arms Export Control Act and the International Emergency Economic Powers Act, to control any

exports, to the extent they are not already controlled by the Department of Energy and the Nuclear Regulatory Commission, that either Secretary determines would assist a country in acquiring the capability to develop, produce, stockpile, deliver, or use weapons of mass destruction or their means of delivery. The Secretary of State shall pursue early negotiations with foreign governments to adopt effective measures comparable to those imposed under this order.

Sec. 3. Department of Commerce Controls. (a) The Secretary of Commerce shall prohibit the export of any goods, technology, or services subject to the Secretary's export jurisdiction that the Secretary of Commerce determines, in consultation with the Secretary of State, the Secretary of Defense, and other appropriate officials, would assist a foreign country in acquiring the capability to develop, produce, stockpile, deliver, or use weapons of mass destruction or their means of delivery. The Secretary of State shall pursue early negotiations with foreign governments to adopt effective measures comparable to those imposed under this section.

(b) Subsection (a) of this section will not apply to exports relating to a particular category of weapons of mass destruction (i.e., nuclear, chemical, or biological weapons) if their destination is a country with whose government the United States has entered into a bilateral or multilateral arrangement for the control of that category of weapons of mass destruction-related goods (including delivery systems) and technology, or maintains domestic export controls comparable to controls that are imposed by the United States with respect to that category of goods and technology, or that are otherwise deemed adequate by the Secretary of State.

(c) The Secretary of Commerce shall require validated licenses to implement this order and shall coordinate any license applications with the Secretary of State and the Secretary of Defense.

(d) The Secretary of Commerce, in consultation with the Secretary of State, shall take such actions, including the promulgation of rules, regulations, and amendments thereto, as may be necessary to continue to regulate the activities of United States persons in order to prevent their participation in activities that could contribute to the proliferation of weapons of mass destruction or their means of delivery, as provided in the Export Administration Regulations, set forth in Title 15, Chapter VII, Subchapter C, of the Code of Federal Regulations, Parts 768 to 799 inclusive.

Sec. 4. Sanctions Against Foreign Persons. (a) In addition to the sanctions imposed on foreign persons as provided in the National Defense Authorization Act for Fiscal Year 1991 and the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991, sanctions also shall be imposed on a foreign person with respect to chemical and biological weapons proliferation if the Secretary of State determines that the foreign person on or after the effective date of this order or its predecessor, Executive Order No. 12735 of November 16, 1990, knowingly and materially contributed to the efforts of any foreign country, project, or entity to use, develop, produce, stockpile, or otherwise acquire chemical or biological weapons.

(b) No department or agency of the United States Government may procure, or enter into any contract for the procurement of, any goods or services from any foreign person described in subsection (a) of this section. The Secretary of the Treasury shall prohibit the importation into the United States of products produced by that foreign person.

(c) Sanctions pursuant to this section may be terminated or not imposed against foreign persons if the Secretary of State determines that there is reliable evidence that the foreign person concerned has ceased all activities referred to in subsection (a).

(d) The Secretary of State and the Secretary of the Treasury may provide appropriate exemptions for procurement contracts necessary to meet U.S. operational military requirements or requirements under defense production agreements, sole source suppliers, spare parts, components, routine servicing and maintenance of products, and medical and humanitarian items. They may provide exemptions for contracts in existence on the date of this order under appropriate circumstances.

Sec. 5. Sanctions Against Foreign Countries. (a) In addition to the sanctions imposed on foreign countries as provided in the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991, sanctions also shall be imposed on a foreign country as specified in subsection (b) of this section, if the Secretary of State determines that the foreign country has, on or after the effective date of this order or its predecessor, Executive Order No. 12735 of November 16, 1990, (1) used chemical or biological weapons in violation of international law; (2) made substantial preparations to use chemical or biological weapons in violation of international law; or (3) developed, produced, stockpiled, or otherwise acquired chemical or biological weapons in violation of international law.

(b) The following sanctions shall be imposed on any foreign country identified in subsection (a)(1) of this section unless the Secretary of State determines, on grounds of significant foreign policy or national security, that any individual sanction should not be applied. The sanctions specified in this section may be made applicable to the countries identified in subsections (a)(2) or (a)(3) when the Secretary of State determines that such action will further the objectives of this order pertaining to proliferation. The sanctions specified in subsection (b)(2) below shall be imposed with the concurrence of the Secretary of the Treasury.

(1) Foreign Assistance. No assistance shall be provided to that country under the Foreign Assistance Act of 1961, or any successor act, or the Arms Export Control Act, other than assistance that is intended to benefit the people of that country directly and that is not channeled through governmental agencies or entities of that country.

(2) Multilateral Development Bank Assistance. The United States shall oppose any loan or financial or technical assistance to that country by international financial

institutions in accordance with section 701 of the International Financial Institutions Act (22 U.S.C. 262d).

(3) Denial of Credit or Other Financial Assistance. The United States shall deny to that country any credit or financial assistance by any department, agency, or instrumentality of the United States Government.

(4) Prohibition of Arms Sales. The United States Government shall not, under the Arms Export Control Act, sell to that country any defense articles or defense services or issue any license for the export of items on the United States Munitions List.

(5) Exports of National Security-Sensitive Goods and Technology. No exports shall be permitted of any goods or technologies controlled for national security reasons under the Export Administration Regulations.

(6) Further Export Restrictions. The Secretary of Commerce shall prohibit or otherwise substantially restrict exports to that country of goods, technology, and services (excluding agricultural commodities and products otherwise subject to control).

(7) Import Restrictions. Restrictions shall be imposed on the importation into the United States of articles (that may include petroleum or any petroleum product) that are the growth, product, or manufacture of that country.

(8) Landing Rights. At the earliest practicable date, the Secretary of State shall terminate, in a manner consistent with international law, the authority of any air carrier that is controlled in fact by the government of that country to engage in air transportation (as defined in section 101(10) of the Federal Aviation Act of 1958 (49 U.S.C. App. 1301(10)).

Sec. 6. Duration. Any sanctions imposed pursuant to sections 4 or 5 of this order shall remain in force until the Secretary of State determines that lifting any sanction is in the foreign policy or national security interests of the United States or, as to sanctions under section 4 of this order, until the Secretary has made the determination under section 4(c).

Sec. 7. Implementation. The Secretary of State, the Secretary of the Treasury, and the Secretary of Commerce are hereby authorized and directed to take such actions, including the promulgation of rules and regulations, as may be necessary to carry out the purposes of this order. These actions, and in particular those in sections 4 and 5 of this order, shall be made in consultation with the Secretary of Defense and, as appropriate, other agency heads and shall be implemented in accordance with procedures established pursuant to Executive Order No. 12851. The Secretary concerned may redelegate any of these functions to other officers in agencies of the Federal Government. All heads of departments and agencies of the United States Government are directed to take all

appropriate measures within their authority to carry out the provisions of this order, including the suspension or termination of licenses or other authorizations.

Sec. 8. Preservation of Authorities. Nothing in this order is intended to affect the continued effectiveness of any rules, regulations, orders, licenses, or other forms of administrative action issued, taken, or continued in effect heretofore or hereafter under the authority of the International Economic Emergency Powers Act, the Export Administration Act, the Arms Export Control Act, the Nuclear Non-proliferation Act, Executive Order No. 12730 of September 30, 1990, Executive Order No. 12735 of November 16, 1990, Executive Order No. 12924 of August 18, 1994, and Executive Order No. 12930 of September 29, 1994.

Sec. 9. Judicial Review. This order is not intended to create, nor does it create, any right or benefit, substantive or procedural, enforceable at law by a party against the United States, its agencies, officers, or any other person.

Sec. 10. Revocation of Executive Orders Nos. 12735 and 12930. Executive Order No. 12735 of November 16, 1990, and Executive Order No. 12930 of September 29, 1994, are hereby revoked.

Sec. 11. Effective Date. This order is effective immediately.

This order shall be transmitted to the Congress and published in the Federal Register.

William J. Clinton

The White House,  
November 14, 1994.

## **Appendix B**

### **Executive Order 13094**

THE WHITE HOUSE  
Office of the Press Secretary

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For Immediate Release

July 28, 1998

#### **EXECUTIVE ORDER 13094**

#### **PROLIFERATION OF WEAPONS OF MASS DESTRUCTION**

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the International Emergency Economic Powers Act (50 U.S.C. 1701 et seq.) (IEEPA), the National Emergencies Act (50 U.S.C. 1601 et seq.), the Arms Export Control Act (22 U.S.C. 2751 et seq.) (AECA), and section 301 of title 3, United States Code,

I, WILLIAM J. CLINTON, President of the United States of America, in order to take additional steps with respect to the proliferation of weapons of mass destruction and means of delivering them and the national emergency described and declared in Executive Order 12938 of November 14, 1994, hereby order:

Section 1. Amendment of Executive Order 12938.

(a) Section 4 of Executive Order 12938 of

November 14, 1994, is revised to read as follows:

"Sec. 4. Measures Against Foreign Persons.

(a) Determination by Secretary of State; Imposition of Measures. Except to the extent provided in section 203(b) of the International Emergency Economic Powers Act (50 U.S.C. 1702(b)), where applicable, if the Secretary of State

determines that a foreign person, on or after November 16, 1990, the effective date of EXecutive Order 12735, the predecessor order to Executive Order 12938, has materially contributed or attempted to contribute materially to the efforts of any foreign country, project, or entity of proliferation concern to use, acquire, design, develop, produce, or stockpile weapons of mass destruction or missiles capable of delivering such weapons, the measures set forth in subsections (b), (c), and (d) of this section shall be imposed on that foreign person to the extent determined by the Secretary of State in consultation with the implementing agency and other relevant agencies. Nothing in this section is intended to preclude the imposition on that foreign person of other measures or sanctions available under this order or under other authorities.

(b) Procurement Ban. No department or agency of the United States Government may procure, or enter into any contract for the procurement of, any goods, technology, or services from any foreign person described in subsection (a) of this section.

(c) Assistance Ban. No department or agency of the United States Government may provide any assistance to any foreign person described in subsection (a) of this section, and no such foreign person shall be eligible to participate in any assistance program of the United States Government.

(d) Import Ban. The Secretary of the Treasury shall prohibit the importation into the United States of goods, technology, or services produced or provided by any foreign person described in subsection (a) of this section, other than information or informational materials within the meaning of section 203(b)(3) of the International Emergency Economic Powers Act (50 U.S.C. 1702(b)(3)).

(e) Termination. Measures pursuant to this section may be terminated against a foreign person if the Secretary of State determines that there is reliable evidence that such foreign person has ceased all activities referred to in subsection (a) of this section.

(f) Exceptions. Departments and agencies of the United States Government, acting in consultation with the Secretary of State, may, by license, regulation, order, directive, exception, or otherwise, provide for:

(i) Procurement contracts necessary to meet U.S. operational military requirements or requirements under defense production agreements; intelligence requirements; sole source suppliers, spare parts, components, routine servicing and maintenance of products for the United States Government; and medical and humanitarian items; and

(ii) Performance pursuant to contracts in force on the effective date of this order under appropriate circumstances."

(b) Section 6 of Executive Order 12938 of November 14, 1994, is amended by deleting "4(c)" and inserting "4(e)" in lieu thereof.

Sec. 2. Preservation of Authorities. Nothing in this order is intended to affect the continued effectiveness of any rules, regulations, orders, licenses, or other forms of administrative action issued, taken, or continued in effect heretofore or hereafter under the authority of IEEPA, AECA, the Nuclear Non-Proliferation Act of 1978, the Nuclear Proliferation Prevention Act of 1994, the Atomic Energy Act, the Export Administration Act (50 U.S.C. App. 2401 et seq.), Executive Order 12730 of September 30, 1990, Executive Order 12735 of November 16, 1990, Executive Order 12924 of August 18, 1994, Executive Order 12930 of September 29, 1994, or Executive Order 12938 of November 14, 1994.

Sec. 3. Judicial Review. Nothing contained in this order shall create any right or benefit, substantive or procedural, enforceable by any party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

Sec. 4. Effective Date.

(a) This order is effective at 12:01 a.m. eastern daylight time on July 29, 1998.

(b) This order shall be transmitted to the Congress and published in the Federal Register.

WILLIAM J. CLINTON

THE WHITE HOUSE,  
July 28, 1998.

## **Appendix C**

### **Presidential Decision Directive 39**

#### **THE WHITE HOUSE WASHINGTON**

June 21, 1995

MEMORANDUM FOR THE VICE PRESIDENT

THE SECRETARY OF STATE

THE SECRETARY OF THE TREASURY

THE SECRETARY OF DEFENSE

THE ATTORNEY GENERAL

THE SECRETARY OF HEALTH AND HUMAN SERVICES

THE SECRETARY OF TRANSPORTATION

THE SECRETARY OF ENERGY

ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY

ASSISTANT TO THE PRESIDENT FOR NATIONAL SECURITY AFFAIRS

DIRECTOR OF CENTRAL INTELLIGENCE

DIRECTOR, UNITED STATES INFORMATION AGENCY

CHAIRMAN OF THE JOINT CHIEFS OF STAFF

DIRECTOR, FEDERAL BUREAU OF INVESTIGATION

DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY

SUBJECT: U.S. Policy on Counterterrorism (U)

It is the policy of the United States to deter, defeat and respond vigorously to all terrorist attacks on our territory and against our citizens, or facilities, whether they occur domestically, in international waters or airspace or on foreign territory. The United States regards all such terrorism as a potential threat to national security as well as a criminal act and will apply all appropriate means to combat it. In doing so, the U.S. shall pursue vigorously efforts to deter and preempt, apprehend and prosecute, or assist other governments to prosecute, individuals who perpetrate or plan to perpetrate such attacks. (U)

We shall work closely with friendly governments in carrying out our counterterrorism policy and will support Allied and friendly governments in combating terrorist threats against them. (U)

Furthermore, the United States shall seek to identify groups or states that sponsor or support such terrorists, isolate them and extract a heavy price for their actions. (U)

It is the policy of the United States not to make concessions to terrorists. (U)

To ensure that the United States is prepared to combat domestic and international terrorism in all its forms, I direct the following steps be taken. (U)

*1. Reducing our Vulnerabilities*

**The United States shall reduce its vulnerabilities to terrorism, at home and abroad.**

It shall be the responsibility of all Department and Agency heads to ensure that their personnel and facilities, and the people and facilities under their jurisdiction, are fully protected against terrorism. With regard to ensuring security:

- The Attorney General, as the chief law enforcement officer, shall chair a Cabinet Committee to review the vulnerability to terrorism of government facilities in the United States and critical national infrastructure and make recommendations to me and the appropriate Cabinet member or Agency head;
- The Director, FBI, as head of the investigative agency for terrorism, shall reduce vulnerabilities by an expanded program of counterterrorism;
- The Secretary of State shall reduce vulnerabilities affecting the security of all personnel and facilities at non-military U.S. Government installations abroad and affecting the general safety of American citizens abroad);
- The Secretary of Defense shall reduce vulnerabilities affecting the security of all U.S. military personnel (except those assigned to diplomatic missions) and facilities);
- The Secretary of Transportation shall reduce vulnerabilities affecting the security of all airports in the U.S. and all aircraft and passengers and all maritime shipping under U.S. flag or registration or operating within the territory of the United States and shall coordinate security measures for rail, highway, mass transit and pipeline facilities);
- The Secretary of State and the Attorney General, in addition to the latter's overall responsibilities as the chief law enforcement official, shall use all legal means available to exclude from the United States persons who pose a terrorist threat and deport or otherwise remove from the United States any such aliens;
- The Secretary of the Treasury shall reduce vulnerabilities by preventing unlawful traffic in firearms and explosives, by protecting the President and other officials against terrorist attack and through enforcement of laws controlling movement of assets, and export from or import into the United States of goods and services, subject to jurisdiction of the Department of the Treasury;

-- The Director, Central Intelligence shall lead the efforts of the Intelligence Community to reduce U.S. vulnerabilities to international terrorism through an aggressive program of foreign intelligence collection, analysis, counterintelligence and covert action in accordance with the National Security Act of 1947 and E.O. 12333. (U)

## *2. Deterring Terrorism*

**The United States shall seek to deter terrorism through a clear public position that our policies will not be affected by terrorist acts and that we will act vigorously to deal with terrorists and their sponsors. Our actions will reduce the capabilities and support available to terrorists. (U)**

\*\*\*\*\*

Within the United States, we shall vigorously apply U.S. laws and seek new legislation to prevent terrorist groups from operating in the United States or using it as a base for recruitment, training, fund raising or other related activities. (U)

*o Return of Indicted Terrorists to the U.S. for Prosecution:* We shall vigorously apply extraterritorial statutes to counter acts of terrorism and apprehend terrorists outside of the United States. When terrorists wanted for violation of U.S. law are at large overseas, their return for prosecution shall be a matter of the highest priority and shall be a continuing central issue in bilateral relations with any state that harbors or assists them. Where we do not have adequate arrangements, the Departments of State and Justice shall work to resolve the problem, where possible and appropriate, through negotiation and conclusion of new extradition treaties. (U)

\*\*\*\*\*

*o State Support and Sponsorship:* Foreign governments assist terrorists in a variety of ways. (U)

\*\*\*\*\*

*C. Enhancing Counterterrorism Capabilities:* The Secretaries of State, Defense, Treasury, Energy and Transportation, the Attorney General, the Director of Central Intelligence and the Director, FBI shall ensure that their organizations' counterterrorism capabilities within their present areas of responsibility are well managed, funded and exercised. (U)

\*\*\*\*\*

### *3. Responding to Terrorism*

We shall have the ability to respond rapidly and decisively to terrorism directed against us wherever it occurs, to protect Americans, arrest or defeat the perpetrators, respond with all appropriate instruments against the sponsoring organizations and governments and provide recovery relief to victims, as permitted by law. (U)

\*\*\*\*\*

**D. Lead Agency Responsibilities:** This directive validates and reaffirms existing lead agency responsibilities for all facets of the United States counterterrorism effort. Lead agencies are those that have the most direct role in and responsibility for implementation of U.S. counterterrorism policy, as set forth in this Directive. Lead agencies will normally be designated as follows: (U)

The Department of State is the lead agency for international terrorist incidents that take place outside of U.S. territory, other than incidents on U.S. flag vessels in international waters. The State Department shall act through U.S. ambassadors as the on-scene coordinators for the U.S. Government. Once military force has been directed, however, the National Command Authority shall exercise control of the U.S. military force. (U)

\*\*\*\*\*

**F. Interagency Support:** To ensure that the full range of necessary expertise and capabilities are available to the on-scene coordinator, there shall be a rapidly deployable interagency Emergency Support Team (EST). The State Department shall be responsible for leading and managing the Foreign Emergency Support Team (FEST) in foreign incidents. The FBI shall be responsible for the Domestic Emergency Support Team (DEST) in domestic incidents. The DEST shall consist only of those agencies needed to respond to the specific requirements of the incident. Membership in the two teams shall include modules for specific types of incidents such as nuclear, biological or chemical threats. The Defense Department shall provide timely transportation for ESTs. (U)

**G. Transportation - related terrorism:** The Federal Aviation Administration has exclusive responsibility in instances of air piracy for the coordination of any law enforcement activity affecting the safety of persons aboard aircraft within the special aircraft jurisdiction of the UPS, as defined in public law. The Department of Justice, acting through the FBI, shall establish and maintain procedures, in coordination with the Departments of State, Defense, and Transportation, to ensure the efficient

resolution of terrorist hijackings. These procedures shall be based on the principle of lead agency responsibility for command, control and rules of engagement. (U)

*H. Consequence Management:* The Director of the Federal Emergency Management Agency shall ensure that the Federal Response Plan is adequate to respond to the consequences of terrorism directed against large populations in the United States, including terrorism involving weapons of mass destruction. FEMA shall ensure that States' response plans are adequate and their capabilities are tested. The State Department shall develop a plan with the Office of Foreign Disaster Assistance and DOD to Provide assistance to foreign populations so victimized. (U)

\*\*\*\*\*

*K. Costs:* Agencies directed to participate in the resolution of terrorist incidents or conduct of counterterrorist operations shall bear the costs of their participation, unless otherwise directed by me. (U)

#### *4. Weapons of Mass Destruction*

The United States shall give the highest priority to developing effective capabilities to detect, prevent, defeat and manage the consequences of nuclear, biological or chemical (NBC) materials or weapons use by terrorists. (U)

The acquisition of weapons of mass destruction by a terrorist group, through theft or manufacture, is unacceptable. There is no higher priority than preventing the acquisition of this capability or removing this capability from terrorist groups potentially opposed to the U.S. (U)

Attachment  
Tab A

Interagency Groups

## **Appendix D**

### **Presidential Decision Directive 62**

THE WHITE HOUSE  
Office of the Press Secretary

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For Immediate Release

May 22, 1998

#### **FACT SHEET**

#### **COMBATING TERRORISM: PRESIDENTIAL DECISION DIRECTIVE 62**

Since he took office, President Clinton has made the fight against terrorism a top national security objective. The President has worked to deepen our cooperation with our friends and allies abroad, strengthened law enforcement's counterterrorism tools and improved security on airplanes and at airports. These efforts have paid off as major terrorist attacks have been foiled and more terrorists have been apprehended, tried and given severe prison terms.

Yet America's unrivaled military superiority means that potential enemies -- whether nations or terrorist groups -- that choose to attack us will be more likely to resort to terror instead of conventional military assault. Moreover, easier access to sophisticated technology means that the destructive power available to terrorists is greater than ever. Adversaries may thus be tempted to use unconventional tools, such as weapons of mass destruction, to target our cities and disrupt the operations of our government. They may try to attack our economy and critical infrastructure using advanced computer technology.

President Clinton is determined that in the coming century, we will be capable of deterring and preventing such terrorist attacks. The President is convinced that we must also have the ability to limit the damage and manage the consequences should such an attack occur.

To meet these challenges, President Clinton signed Presidential Decision Directive 62. This Directive creates a new and more systematic approach to fighting the terrorist threat

of the next century. It reinforces the mission of the many U.S. agencies charged with roles in defeating terrorism; it also codifies and clarifies their activities in the wide range of U.S. counter-terrorism programs, from apprehension and prosecution of terrorists to increasing transportation security, enhancing response capabilities and protecting the computer-based systems that lie at the heart of America's economy. The Directive will help achieve the President's goal of ensuring that we meet the threat of terrorism in the 21st century with the same rigor that we have met military threats in this century.

#### The National Coordinator

To achieve this new level of integration in the fight against terror, PDD-62 establishes the Office of the National Coordinator for Security, Infrastructure Protection and Counter-Terrorism. The National Coordinator will oversee the broad variety of relevant policies and programs including such areas as counter-terrorism, protection of critical infrastructure, preparedness and consequence management for weapons of mass destruction. The National Coordinator will work within the National Security Council, report to the President through the Assistant to the President for National Security Affairs and produce for him an annual Security Preparedness Report. The National Coordinator will also provide advice regarding budgets for counter-terror programs and lead in the development of guidelines that might be needed for crisis management.

## **Appendix E**

### **Presidential Decision Directive 63**

#### **FACT SHEET**

**THE WHITE HOUSE**  
Office of the Press Secretary

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For Immediate Release

May 22, 1998

#### **FACT SHEET**

#### **PROTECTING AMERICA'S CRITICAL INFRASTRUCTURES: PDD 63**

This Presidential Directive builds on the recommendations of the President's Commission on Critical Infrastructure Protection. In October 1997, the Commission issued its report calling for a national effort to assure the security of the United States' increasingly vulnerable and interconnected infrastructures, such as telecommunications, banking and finance, energy, transportation, and essential government services.

Presidential Decision Directive 63 is the culmination of an intense, interagency effort to evaluate those recommendations and produce a workable and innovative framework for critical infrastructure protection. The President's policy:

Sets a goal of a reliable, interconnected, and secure information system infrastructure by the year 2003, and significantly increased security to government systems by the year 2000, by:

Immediately establishing a national center to warn of and respond to attacks.

Ensuring the capability to protect critical infrastructures from intentional acts by 2003.

Addresses the cyber and physical infrastructure vulnerabilities of the Federal government by requiring each department and agency to work to reduce its exposure to new threats;

Requires the Federal government to serve as a model to the rest of the country for how infrastructure protection is to be attained;

Seeks the voluntary participation of private industry to meet common goals for protecting our critical systems through public-private partnerships;

Protects privacy rights and seeks to utilize market forces. It is meant to strengthen and protect the nation's economic power, not to stifle it.

Seeks full participation and input from the Congress.

PDD-63 sets up a new structure to deal with this important challenge:

a National Coordinator whose scope will include not only critical infrastructure but also foreign terrorism and threats of domestic mass destruction (including biological weapons) because attacks on the US may not come labeled in neat jurisdictional boxes;

The National Infrastructure Protection Center (NIPC) at the FBI which will fuse representatives from FBI, DOD, USSS, Energy, Transportation, the Intelligence Community, and the private sector in an unprecedented attempt at information sharing among agencies in collaboration with the private sector. The NIPC will also provide the principal means of facilitating and coordinating the Federal Government's response to an incident, mitigating attacks, investigating threats and monitoring reconstitution efforts;

Information Sharing and Analysis Centers (ISACs) are encouraged to be set up by the private sector in cooperation with the Federal government and modeled on the Centers for Disease Control and Prevention;

A National Infrastructure Assurance Council drawn from private sector leaders and state/local officials to provide guidance to the policy formulation of a National Plan;

The Critical Infrastructure Assurance Office will provide support to the National Coordinator's work with government agencies and the private sector in developing a national plan. The office will also help coordinate a national education and awareness program, and legislative and public affairs.

## *Glossary*

CB	Chemical and Biological
CW	Chemical warfare
CWC	Chemical Weapons Convention
DOD	Department of Defense
FBI	Federal Bureau of Investigation
SAAS	School of Advanced Airpower Studies
USAF	United States Air Force
WMD	Weapons of Mass Destruction

**Chemical agent.** A chemical substance used to kill, seriously injure, or incapacitate an individual or group of individuals by inducing a chemical reaction.

**Chemical contamination.** The presence of an agent on a person, object, or area. Contamination density is usually expressed in milligrams or grams per square meter or in pounds per hectare.

**Chemical warfare.** The use of chemical agents in all aspects of military operations including the warning and protective measures associated with such offensive operations.

**Chemical weapon.** Those weapons that produce effects on living organisms through their toxic chemical properties.

**Chemical Weapons Convention.** A global treaty that bans the production, acquisition, stockpiling, transfer and use of chemical weapons.

**Lethality.** Lethal agents generally cause fatalities while non-lethal agents cause injury or incapacitation.

**Mode of action.** The method in which the chemical agent attacks the living organism such as inhalation, skin contact, or swallowing.

**Persistency.** The measure of time the chemical agent exists once employed. Nonpersistent agents usually evaporate rather quickly while persistent agents last from several days to a few weeks. Semipersistent agents have a life existence of several hours to one day.

**Speed of action.** The time the chemical agent takes to achieve desired results. Some agents take only moments to act while others require several hours, days, weeks, or months. Higher doses generally increase the rate of action.

**State.** The physical form a chemical agent takes—solid, liquid, or gaseous.

**Toxicity.** The measure of a quantity of substance required to achieve a certain effect.

**Vesicant.** Any chemical agent causing burns inflammation, and destruction of the internal or external tissue of the body.

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